

From: Science & Data Subcommittee

To: Vermont Climate Council

Subject: Recommendations Regarding Greenhouse Gas Inventory and Supplemental Accounting

Dear Councilors,

The Science and Data subcommittee has reviewed the paper titled, “Greenhouse Gas Inventory Review: Vermont’s Current Methods, Comparison with Accepted Practices, and Recommendations” submitted by technical consultant Energy Futures Group (EFG).

We recommend adoption of this thorough, careful report, agree with its recommendations, and are pleased to forward it for your review.

Specifically, we agree that, at least for purposes of this first iteration of the Climate Action Plan, the State of Vermont should:

- 1) Maintain and continue to update and improve the current sector-based (or in-boundary) GHG Inventory methodology, for consistency with IPCC, EPA, and peer states.
- 2) Continue to report on gross emissions (i.e., sources of emissions, for compliance with GWSA), while also working to improve how we track and report net emissions (which includes emissions sinks in addition to emissions sources). Note that recommendations about the carbon budget and net emissions tracking (inclusive of how to better estimate carbon sinks) will be forthcoming at a later date, as part of the “Task 2” carbon budget effort.
- 3) Include supplemental information and sensitivity analyses as part of the next published GHG Inventory. Specifically, this should include (but not be limited to):
 - a. Biogenic greenhouse gases
 - b. Presentation of alternate time horizons for the global warming potential of greenhouse gases (i.e., GWP20 in addition to GWP100).
 - c. Latest IPCC Assessment Report values (i.e., AR5 and eventually AR6, not just AR4).
- 4) Maintain REC accounting as the basis for calculating electricity sector emissions (i.e., emissions from our purchase and consumption of electricity, not from electricity generated within our borders). In doing so, we concur with the EFG recommendation to use the most accurate REC values available for the region, perhaps using the REC settlement information compiled by the Massachusetts Department of Environmental Conservation (DEC).
- 5) Adopt key category analysis for future inventories.

Additionally, we recommend the following next steps:

- 1) Develop and issue a Request for Information (RFI) regarding questions related to conducting upstream and/or lifecycle accounting of emissions related to the use of energy in Vermont, including those emissions that occur outside the boundaries of the state, as called for in section 578(a) of the GWSA. Note: this should include emissions related to all energy use (including but not limited to fuels used for transportation and heating), not just electricity.
- 2) Develop and issue a Request for Proposals (RFP) and then select a technical expert to design and conduct a new upstream and/or lifecycle accounting of GHG emissions related to Vermont's energy use, capturing assumptions and methods transparently such that the Agency of Natural Resources can then update the accounting going forward, to be published alongside the annual in-boundary Inventory.

This upstream and/or lifecycle energy use emissions accounting is envisioned to generate supplemental analysis that would stand alongside—but not yet replace—our current in-boundary GHG Inventory. This new and supplemental accounting will function as a decision aid, helping to ensure that Vermont achieves a fuller understanding of the emissions that we can fairly be understood to be responsible for and options for reducing such emissions (even if they occur out of state), while also helping to avoid unintended consequences (for instance, the possibility of pathways, strategies, or actions that could reduce in-boundary emissions but increase out of state emissions).

We recognize that implementing these recommendations will require additional resources. In the immediate term, that includes funds from the budget available to the Council, via the Agency of Natural Resources, for consulting services. In the medium and longer term, that will also include sufficient ANR staffing and resources to enable expanded and ongoing work regarding our Inventory and supplemental GHG accounting methods.

Given that the full results of this suggested RFI and RFP process and the resulting new accounting may not be complete by the due date for the initial Climate Action Plan (CAP), we recommend that any suggested mitigation pathways and strategies for the CAP be assessed with reference not just to our existing in-boundary inventory but also with reference to information that is presently available regarding upstream or lifecycle emissions assessments for various fuels, including but not limited to those in the Greenhouse gases, Regulated Emissions, and Energy use in Technologies (GREET) model developed and hosted by Argonne National Laboratory. We anticipate and recommend that updates to the forthcoming CAP as well all future CAPs assess mitigation pathways, strategies, and actions relative to both the State's official in-boundary inventory and the forthcoming supplemental accounting for upstream and/or lifecycle emissions related to energy use.

Thank you,

Science & Data Subcommittee Members